

WHAT IS CLAIMED IS:

1. An installation on a scanner capable of increasing a usable scanning range along an axial direction of a light source, comprising:

a linear light source having a light axis, wherein a brightness level near a mid-  
5 portion on the light axis is higher than brightness levels near two end portions of the light axis and the linear light source provides a light beam necessary for scanning a document; and

a light-channeling panel adjacent to the linear light source, wherein the light-channeling panel concentrates more light from the linear light source in the two end  
10 portions rather than the mid-portion and the light-channeling panel is formed from a plurality of panel materials, each having a different light transparency, so that the mid-portion of the light axis has a lower light transparency than the two end portions of the light axis, wherein after light originating from the linear light source has passed through the light-channeling panel, a band of light having a more homogenous brightness level  
15 than the linear light source is produced.

2. The installation of claim 1, wherein the linear light source further includes a plurality of parallel linear light tubes.

3. An installation on a scanner capable of increasing the usable scanning range along the axial direction of a light source, comprising:

a linear light source having a light axis, wherein a brightness level near a mid-  
20 portion on the light axis is higher than brightness levels near two end sections of the light axis, and the linear light source provides a light beam necessary for scanning a document;

a light-channeling panel adjacent to the linear light source, wherein the light-channeling panel concentrates more light from the linear light source in the two end portions rather than the mid-portion and the light-channeling panel is formed using a plurality of panel materials, each having a different light transparency, so that the mid-portion of the light axis has a lower light transparency than the two end portions of the light axis, wherein after light originating from the linear light source has passed through the light-channeling panel, a band of light having a more homogenous brightness level than the linear light source is produced;

an optical transmission system for transmitting a light image of the document produced by light from the linear light source that has passed through the light-channeling panel and reflected from the document; and

an optical sensor that receives the light from the optical transmission system to produce a scan image.

4. The installation of claim 3, wherein the linear light source includes a plurality of parallel linear light tubes.

5. The installation of claim 3, wherein the optical transmission system further includes a lens.

6. The installation of claim 3, wherein the optical transmission system further includes one or more reflecting mirrors.

7. The installation of claim 6, wherein the optical transmission system further includes a lens.

8. An installation on a scanner capable of increasing a usable scanning range along an axial direction of a light source, comprising:

a linear light source having a light axis, wherein a brightness level near a mid-portion on the light axis is higher than brightness levels near the end sections of the light axis, and the linear light source provides a light beam necessary for scanning a document;

5 a light-channeling panel adjacent to the linear light source, wherein the light-channeling panel concentrates more light from the linear light source at the two end portions rather than the mid-portion and the light-channeling panel is formed using a plurality of panel materials, each having a different light transparency, so that the mid-portion of the light axis has a lower light transparency than the two end portions of the  
10 light axis, wherein after light originating from the linear light source has passed through the light-channeling panel, a band of light having a more homogenous brightness level than the linear light source is produced; and

a contact image sensor, wherein the sensor receives a light image of the document produced by the light from the linear light source that has passed through the  
15 light-channeling panel and reflected from the document so that a scan image is formed.

9. The installation of claim 8, wherein the linear light source further includes a plurality of parallel linear light tubes.